STEREO POWER AMPLIFIER

KAC-1020

SERVICE MANUAL

KENWOOD

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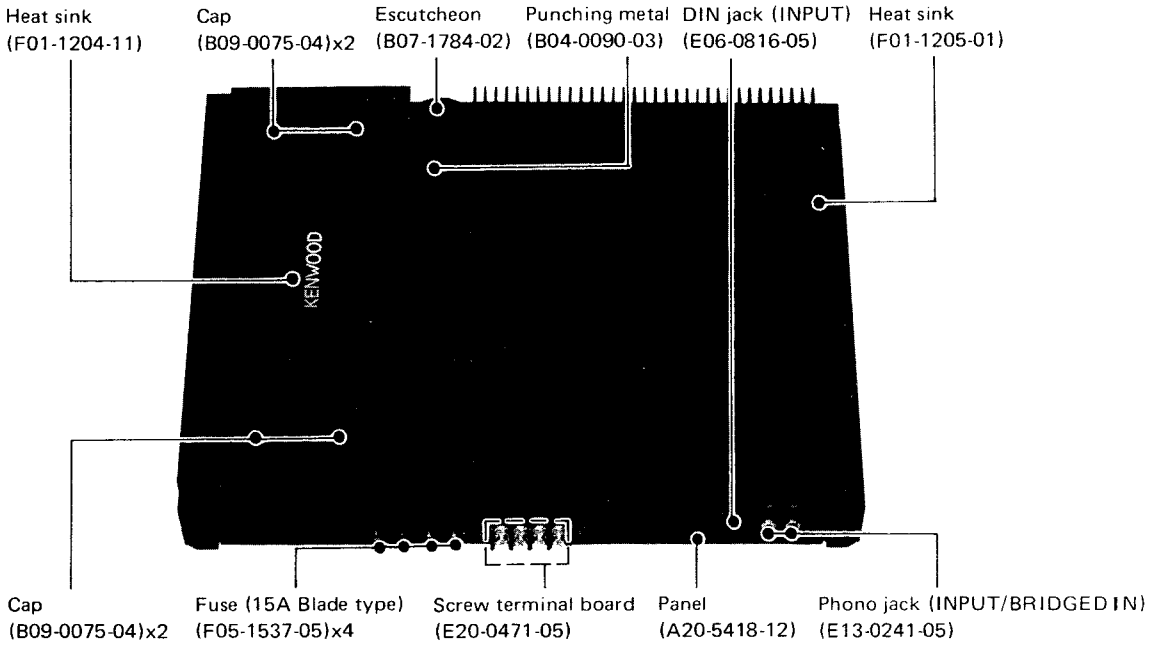
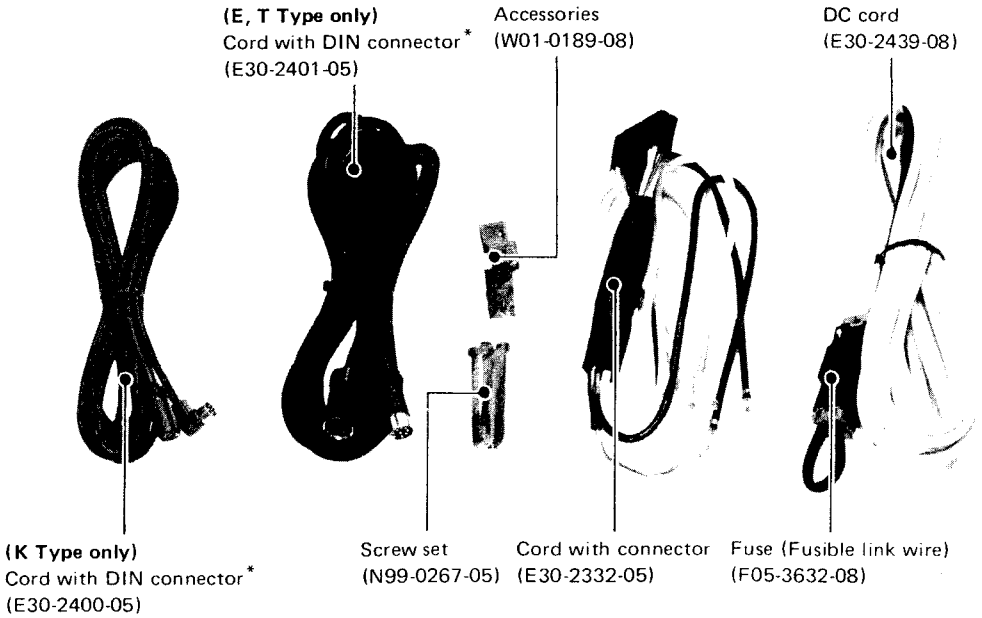
B51-3415-00(O)2496





*Refer to parts list on page 22.

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CONTENTS/CONNECTIONS

CONTENTS

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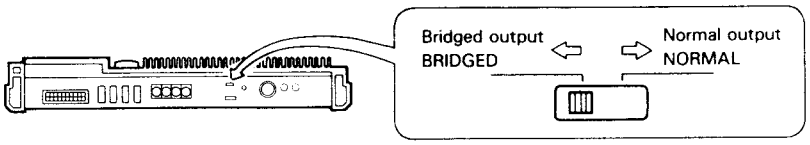
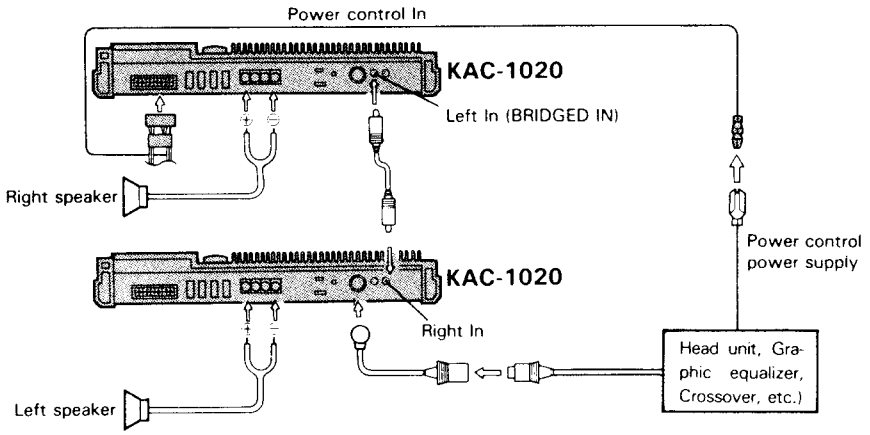
CONNECTIONS

■ Bridge switch

- **This unit uses the BTL output system, and is equipped with a bridge switch, which allows the output to be doubled (the output is monaural in this case).**



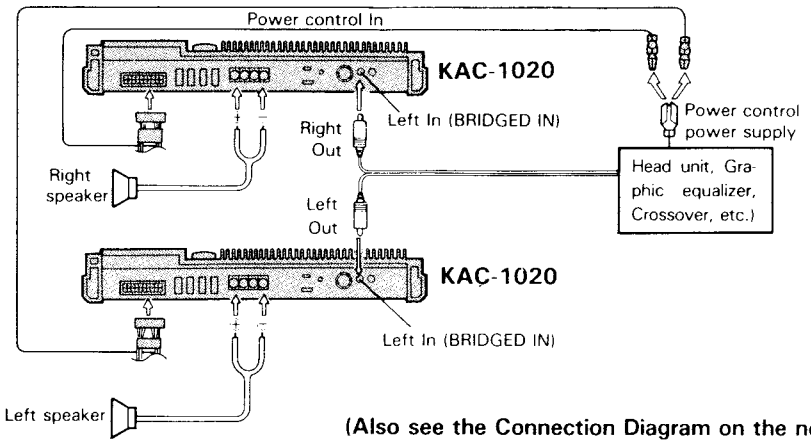
- **Connection of a bridged output system using DIN cables**



(Also see the Connection Diagram on the next page.)

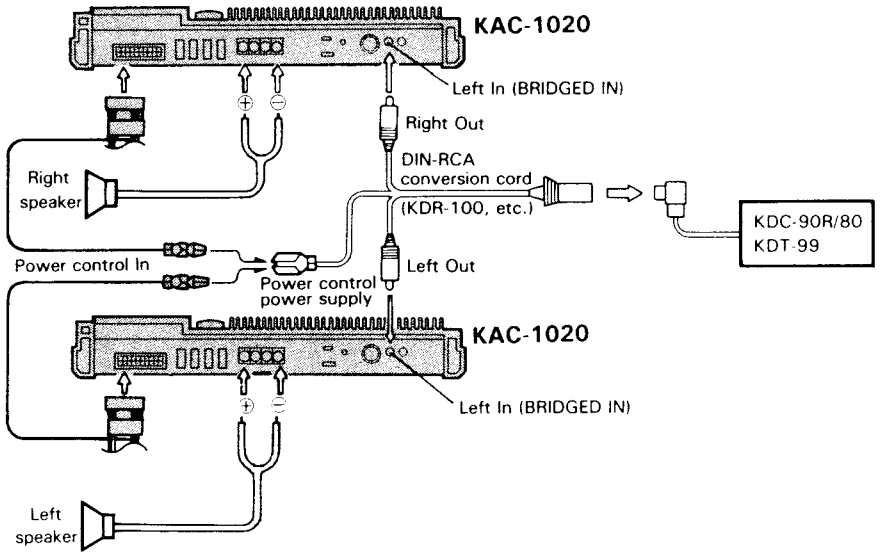
CONNECTIONS

- **Connection of a bridged output system using RCA pin-plug cables**



(Also see the Connection Diagram on the next page.)

- **When a bridged output system is made up using a DAT player not equipped with a CD player or tuner as the head unit, always use a DIN-RCA conversion cord (KDR-100, etc.).**



(Also see the Connection Diagram on the next page.)

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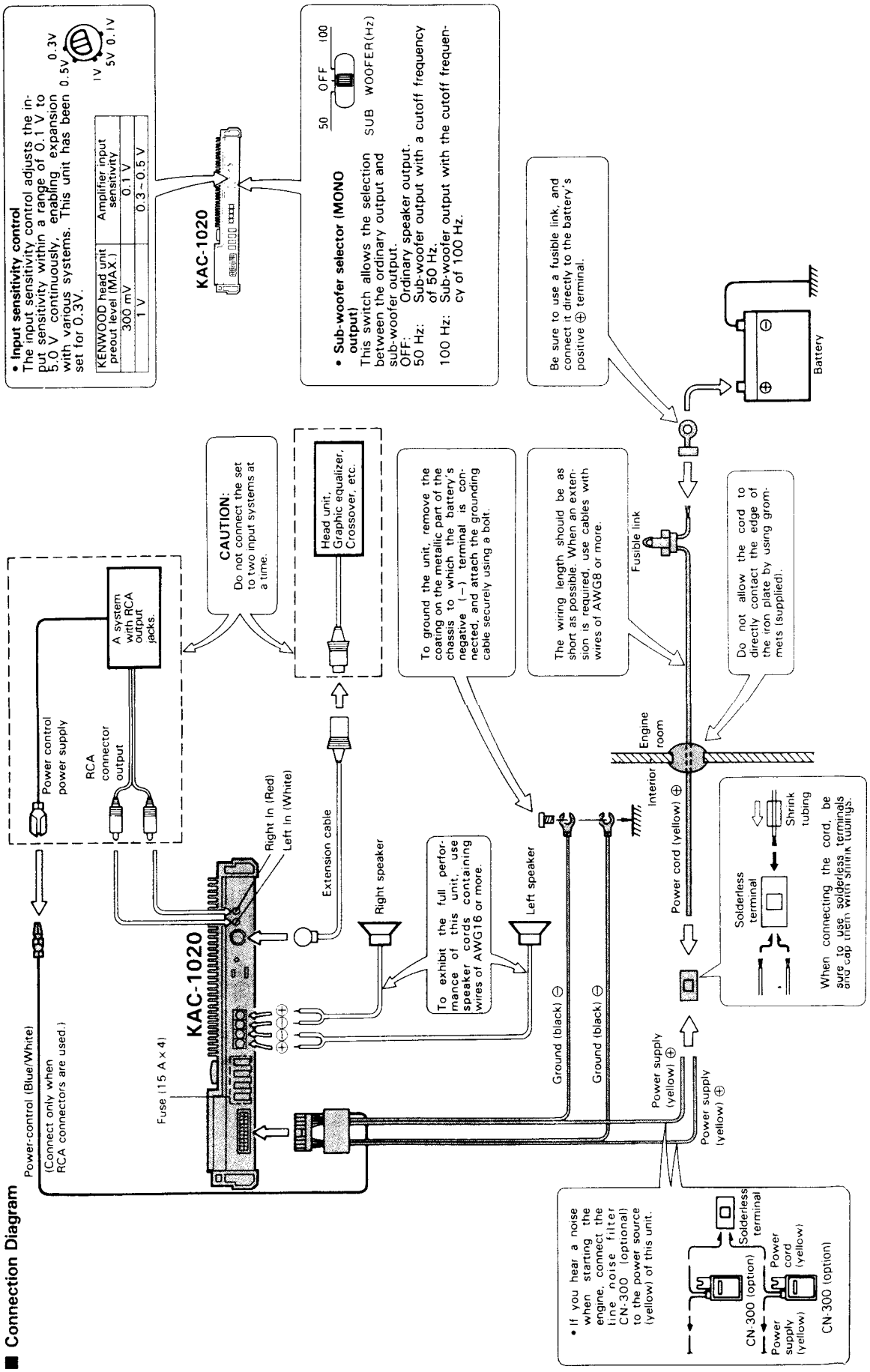
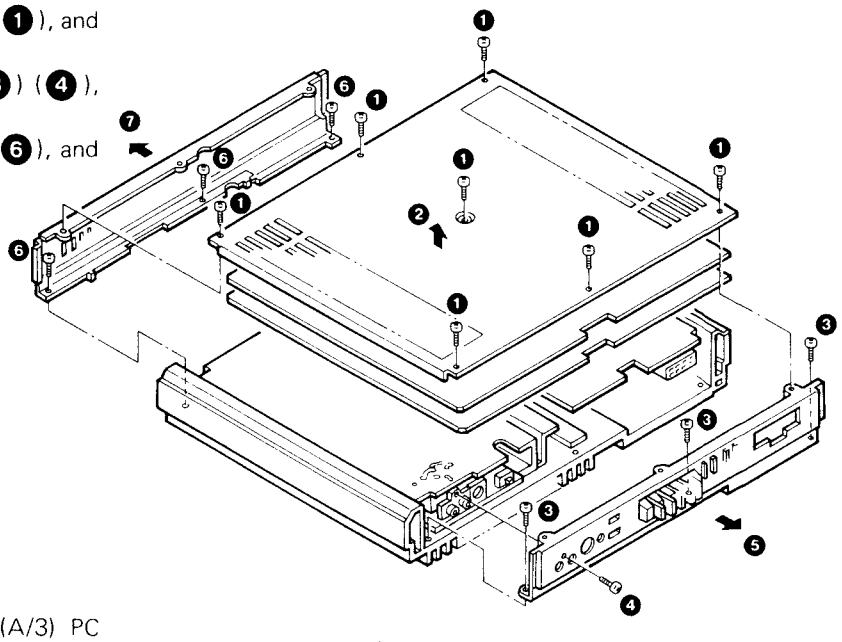
CONNECTIONS

■ Connection Diagram

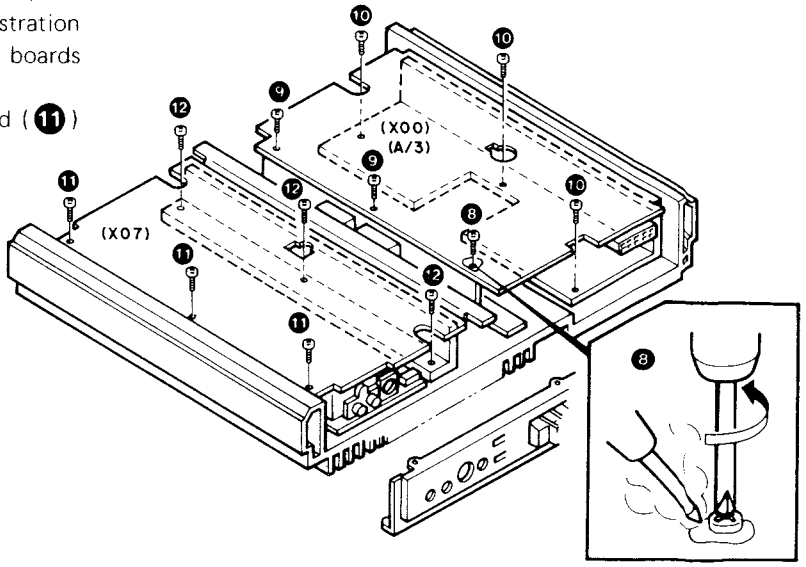

• Input sensitivity control
The input sensitivity control adjusts the input sensitivity within a range of 0.1 V to 5.0 V continuously, enabling expansion with various systems. This unit has been set for 0.3V.
KENWOOD head unit preout level (MAX.)
Amplifier input sensitivity
300 mV
0.1 V
1 V
0.3~0.5 V
0.3V
0.5V
1V
5V
0.1V
KAC-1020
• Sub-woofer selector (MONO output)
This switch allows the selection between the ordinary output and sub-woofer output.
OFF: Ordinary speaker output.
50 Hz: Sub-woofer output with a cutoff frequency of 50 Hz.
100 Hz: Sub-woofer output with the cutoff frequency of 100 Hz.
50 OFF 100
SUB WOOFER(Hz)
Be sure to use a fusible link, and connect it directly to the battery's positive ⊕ terminal.
Battery
CAUTION:
Do not connect the set to two input systems at a time.
Head unit, Graphic equalizer, Crossover, etc.
A system with RCA output jacks.
Power control power supply
RCA connector output
To ground the unit, remove the coating on the metallic part of the chassis to which the battery's negative (−) terminal is connected, and attach the grounding cable securely using a bolt.
The wiring length should be as short as possible. When an extension is required, use cables with wires of AWG8 or more.
Fusible link
Do not allow the cord to directly contact the edge of the iron plate by using grommets (supplied).
Engine room
Interior
Right In (Red)
Left In (White)
Extension cable
Right speaker
Left speaker
KAC-1020
To exhibit the full performance of this unit, use speaker cords containing wires of AWG16 or more.
Power cord (yellow) ⊕
Solderless terminal
Shrink tubing
When connecting the cord, be sure to use solderless terminals and cap them with shrink tubings.
Power-control (Blue/White)
(Connect only when RCA connectors are used.)
Fuse (15 A × 4)
Ground (black) ⊖
Ground (black) ⊖
Power supply (yellow) ⊕
Power supply (yellow) ⊕
• If you hear a noise when starting the engine, connect the line noise filter CN-300 (optional) to the power source (yellow) of this unit.
CN-300 (option)
Solderless terminal
Power cord (yellow)
Power supply (yellow)
CN-300 (option)

DISASSEMBLY FOR REPAIR

1. Remove the 7 screws fixing the bottom panel (❶), and remove the bottom panel (❷).
2. Remove the 4 screws fixing the rear panel (❸) (❹), and remove the rear panel (❺).
3. Remove the 3 screws fixing the front panel (❻), and remove the front panel (❼).

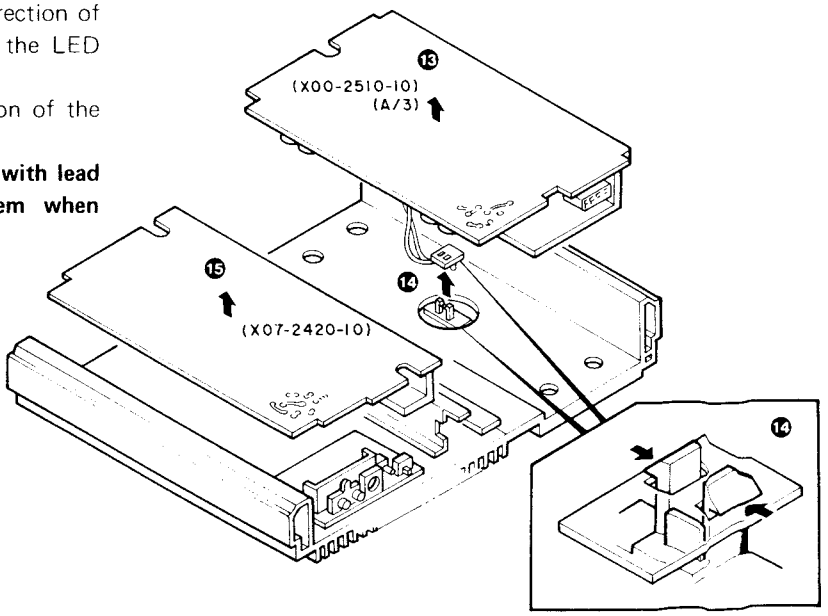


4. Remove the screw soldered on the (X00-) (A/3) PC board by melting the solder as shown in the illustration (❽), and remove the 5 screws fixing other PC boards (❾) (❿).
5. Remove the 5 screws fixing the (X07-) PC board (⓫) (⓬).



6. Remove the (X06-) (A/3) PC board in the direction of the arrow (⓭). Then disengage the lugs on the LED Unit PC board and remove the PC board (⓮).
7. Remove the (X07-) PC board in the direction of the arrow (⓯).

Caution : The PC boards are inter-connected with lead wires. Be careful not to cut them when removing.



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DESCRIPTION OF COMPONENTS

Description of Components

POWER SUPPLY UNIT (X00-2510-10)

Component	Application/Function	Operation/Condition/Compatibility
Q1 ~ 8	Switch	Power stage of DC/DC converter.
Q9 ~ 12	Switch	Driver stage of DC/DC converter.
Q13, 14	Switch	Turns the power supply to IC1 and IC2 ON/OFF according to ON/OFF of the P-cont.
Q15, 16	Switch	When the output from IC3 (2/2) is "H", turns the power of the fan ON.
Q17	Switch	When the output from IC3 (1/2) is "H", Q17 goes ON, pulling the base of Q18 to "L" and turning the DC/DC converter OFF.
Q18	Switch	P-cont which turns Q13 and Q14 ON/OFF.
IC1, 2	Pulse generator	Generates the pulse for DC/DC converter.
IC3	Comparator	When posistor TH1 or the posistor on the Main amplifier unit detects a temperature of 60°C or more, IC3 (2/2) outputs "H". If TH2 detects a temperature of 100°C, IC3 (1/2) outputs "H"

MAIN AMPLIFIER UNIT (X07-2420-10)

Component	Application/Function	Operation/Condition/Compatibility
Q1 ~ 4	Class A 1st-stage cascode circuit	
Q5 ~ 8	Class A 2nd-stage differential amp	
Q9, 10	Class A cascode circuit	
Q11, 12	Class A 3rd-stage amp	
Q13, 14	Class A current mirror circuit	
Q15, 16	Class A 3rd-stage amp	
Q17, 18	Bias circuit	Used for final transistor temperature compensation.
Q19 ~ 26 Q35 ~ 38	Cascode bootstrap circuit	VIG circuit. Q19 to Q22 form the constant-current circuit, Q35 to Q38 form a buffer, Q23 to Q26 are base-grounded to from a cascode circuit with respect to the diver stage.
Q27 ~ 34	Predriver	
Q39 ~ 46	High-side power	Final transistor on the High-output side.
Q47 ~ 50	Low-side power	Final transistor on the Low-output side.
Q51, 52	ASO detector	In case overload occurs, limits the input to protect the final transistors.
Q53, 54	Current limiter	
Q55	Constant-voltage circuit	When the ASO detector circuit of Q51 and Q52 operates, Q55 transmits the signal to the protection IC (IC6).
Q56	Delay circuit	When the protection relay is activated, for example when the power is turned ON, Q56 protects the power relay contact by turning the input muting lead relay untill the power relay goes ON.
Q57, 58	Constant-current circuit	Constant-current regulator circuit for differential circuit in the Main Class A circuit 1st-stage.
Q59, 60	Constant-current circuit	Ripple elimination circuit inserted in the B line to the Main Class A 1st-stage.
Q61 ~ 64	Constant-current circuit	For the Main Class A stage. Q61 and Q64 are used for control and Q62 and Q63 for error amplification.
Q65 ~ 68	Constant-current circuit	For the isolation amp in the sub-woofer circuit. Q67 and Q68 are used for control and Q65 and Q66 for error amplification.
Q69	P-cont level	Detects the P-cont level.
Q70	Constant-current circuit	Drives the power relay.
IC1, 2	Class A 1st-stage amp	
IC3, 4	DLD switching IC	
IC5	Low-pass filter amp	Amplifier for sub-woofer.
IC6	Protection IC	Performs muting when power is turned ON/OFF, detection of DC leakage to the SP terminal, detection of DC when the input grounding is separated, and control of relay and lead relay when overload occurs during ASO detection.

SWITCH UNIT (X13-5870-10)

Component	Application/Function	Operation/Condition/Compatibility
IC1	Isolation amp	The 1st-stage is the pre-isolation amp with 28dB gain, and the 2nd-stage performs isolation.
IC2	BTL phase inverter amp	

ADJUSTMENT/REGLAGE/ABGLEICH

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
	Connect a cassette deck.						
1	IDLE CURRENT	–	Connect a DC voltmeter to: TP1 (L), or TP2 (R)	VOLUME: 0	VR1 (L) VR2 (R)	6mV	(a)

(Note) The DC power shall have a large capacity (of 10 A or more). If it is smaller, the DC-DC converter may not operate.

REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINT L'ALIGNEMENT	ALIGNER POUR	FIG.
	Raccorder une platine à cassette.						
1	COURANT DE POLARISATION	–	Raccorder un voltmètre CC à: TP1 (G) ou TP2 (D)	VOLUME: 0	VR1 (G) VR2 (D)	6mV	(a)

(Remarque) L'alimentation CC doit avoir une grande capacité (de 10 A ou plus). Si elle est inférieure, le convertisseur CC-CC risque de ne pas fonctionner.

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
	Ein Kassettendeck anschließen.						
1	LEERLAUFSTROM	–	Einen Gleichstrom-Voltmeter anschließen an: TP1 (L) oder TP2 (R)	VOLUME: 0	VR1 (L) VR2 (R)	6mV	(a)

(Hinweis) Die Gleichspannung muß eine hohe Kapazität (von 10 A oder mehr) aufweisen, weil sonst der Gleichstrom/Gleichstrom-Konverter eventuell nicht arbeitet.

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VOLTAGE CHECK TABLE

(X00-2510-10)

IC1

2	2.5V
7	0V
8	14V
9, 10	0V
11, 12	14V
13~15	5V
16	0V

IC2

2	2.5V
7	0V
8	14V
9, 10	0V
11, 12	14V
13~15	5V
16	0V

IC3

2, 6	4.3V
7	0V

	B	C	E
Q1~4	–	14V	–
Q5~8	–1.4V	14V	–
Q9~12	–1.2V	14V	–1.4V
Q13, 14	–	14V	–
Q15	0V	–	–
Q16, 17	0V	–	–

(X13-5870-10)

IC1

5	16V
7	–16V

(X07-2420-10)

IC1

1	4V
3, 5	0.3V
7	4V

IC3

1	–0.6V
4	–63V
6	–26V
7	6mV
11	26V
13	63V
16	0.6V

IC4

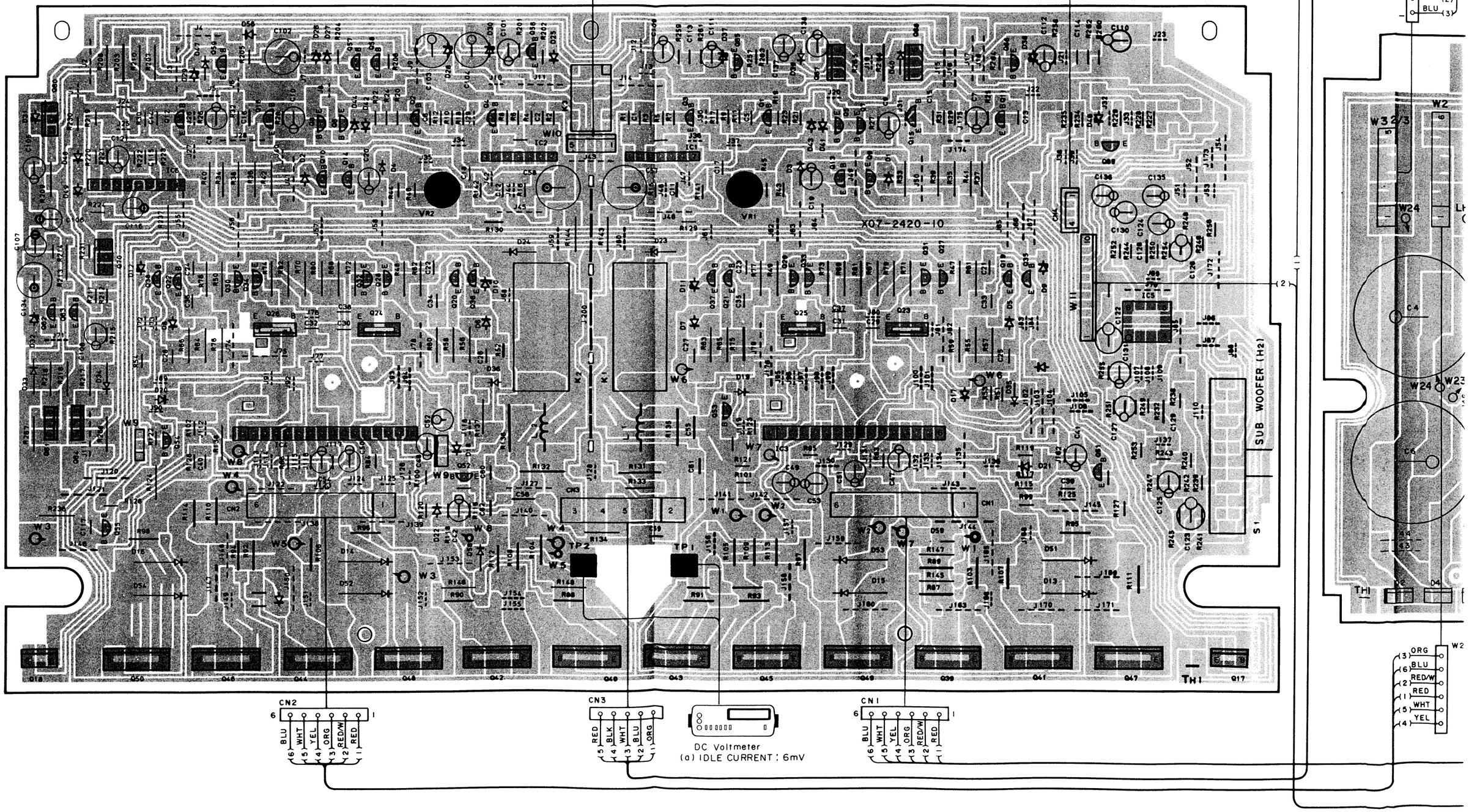
4	–63V
6	–26V
7	6mV
13	63V

IC5

8	16V

	B	C	E
Q1, 3	4V	9.5V	4V
Q5, 7	9.5V	–	–
Q9	0V	48V	–0.6V
Q11	–	–4.9V	–
Q13	48V	1.8V	–
Q15	–48V	–1.8V	–
Q17	–1.1V	–0.2V	–1.8V
Q19	57.4V	7.4V	58V
Q21	–57.5V	–7.4V	–
Q23	7.4V	63V	6.9V
Q24	–	63V	–
Q25	–7.4V	–63V	–
Q26	–	–63V	–
Q27	–	6.9V	1.2V
Q29	–	–6.8V	–1.2V
Q33	–	–6.8V	–0.6V
Q35	0.6V	–	1.2V
Q37	–0.6V	–	–1.2V
Q39, 40	–	63V	
Q41	–0.7V	63V	–
Q42	–	63V	–
Q43~46	–	–63V	–
Q47	0.6V	25V	–
Q48	–	–	6mV
Q49	–0.6V	–	6mV
Q51	–	58V	0V
Q55		–	6V
Q56	–	–	26V
Q57	–13.8V	–	–18.5V
Q58	–13.8V	–7V	–
Q59	–42V	–19.5V	–42.7V
Q60	41.4V	27V	42V
Q61	–	–	50V
Q64	–	–	–50V
Q67	–	–	16V
Q68	–	–	–16V

PC BOARD (COMPONENT SI



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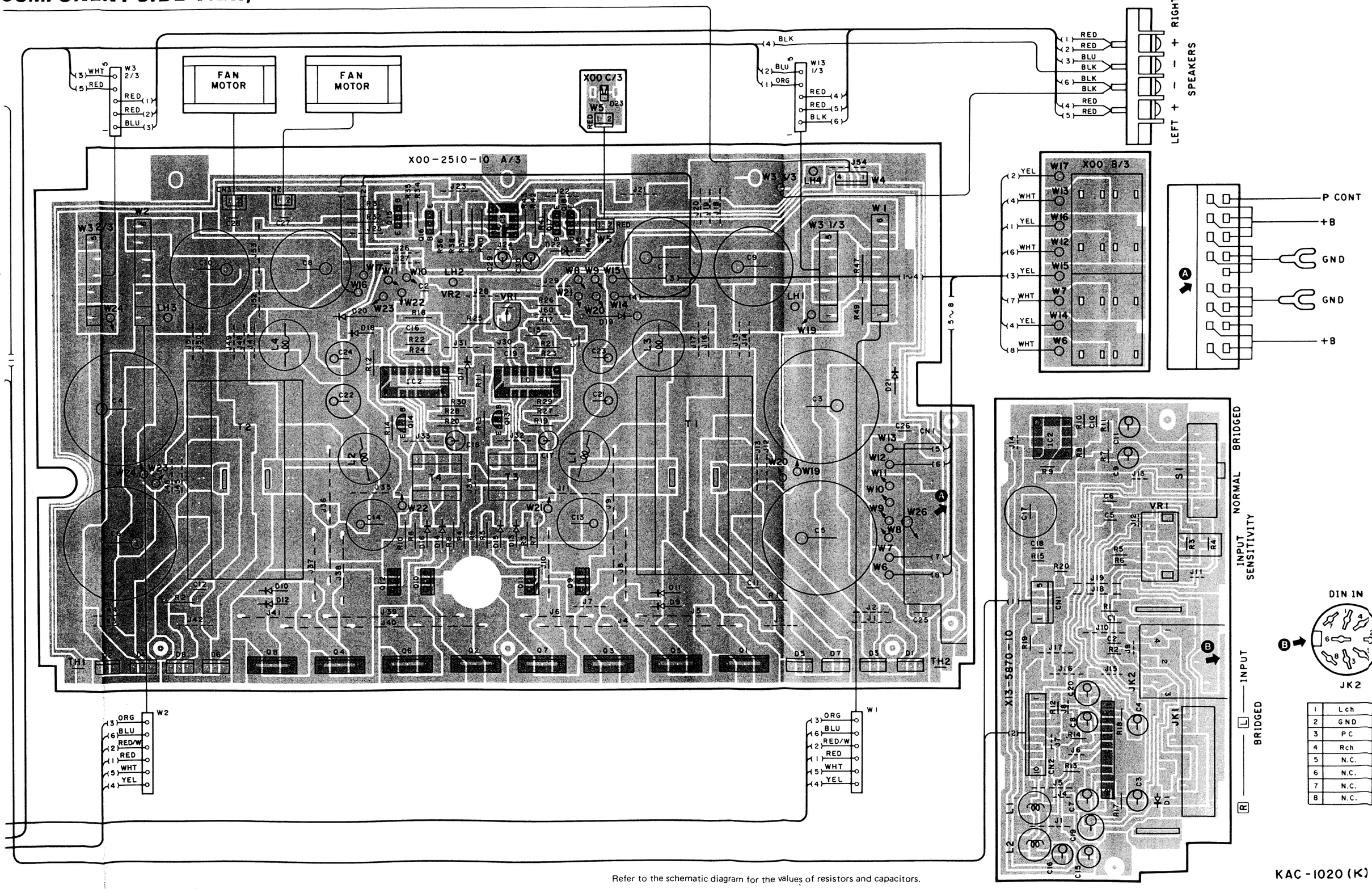
COMPONENT SIDE VIEW)



1	Lch
2	GND
3	PC
4	Rch
5	N.C.
6	N.C.
7	N.C.
8	N.C.

Refer to the schematic diagram for the values of resistors and capacitors.

KAC-1020(K)

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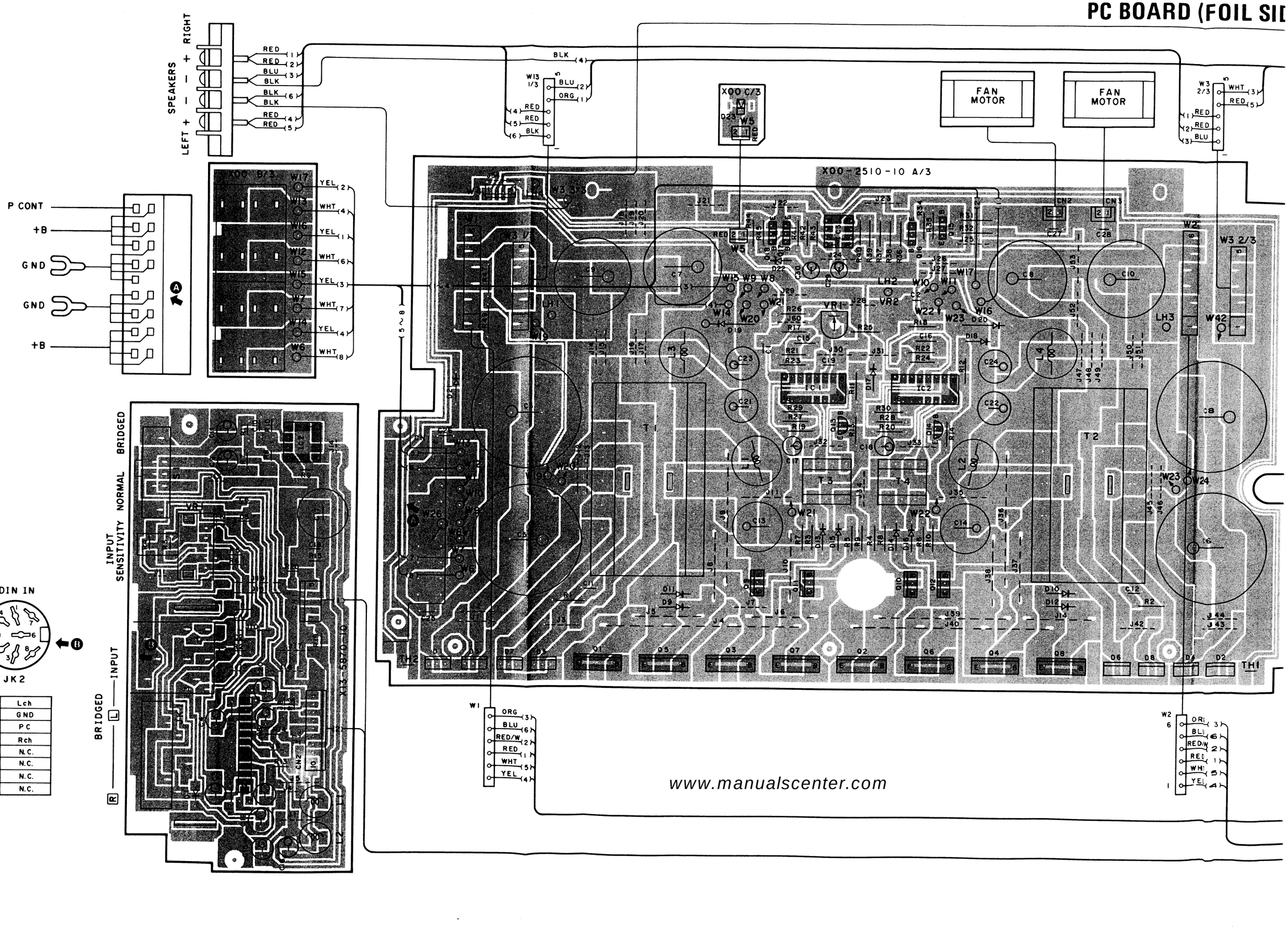
PC BOARD (FOIL SI



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BOARD (FOIL SIDE VIEW)

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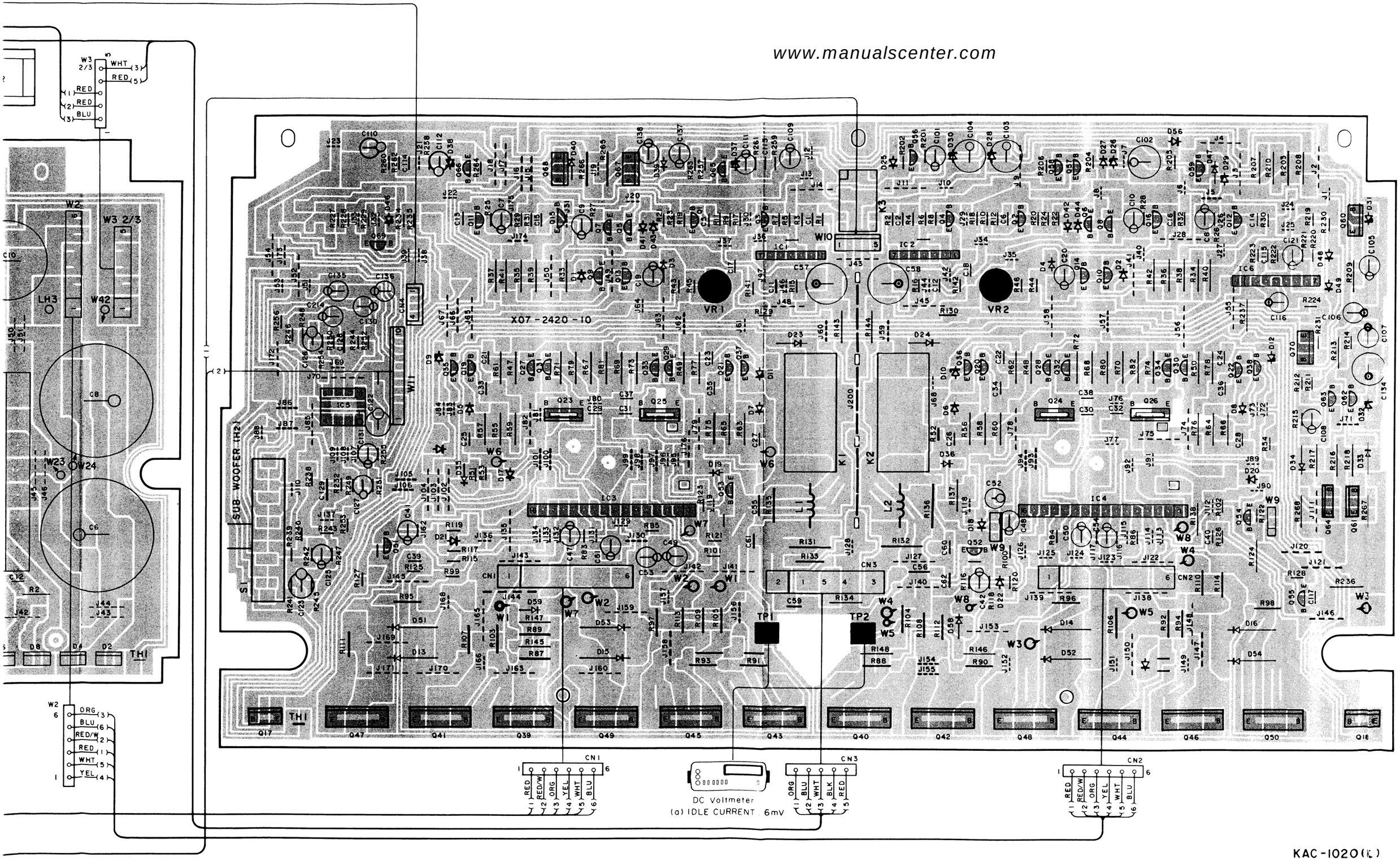
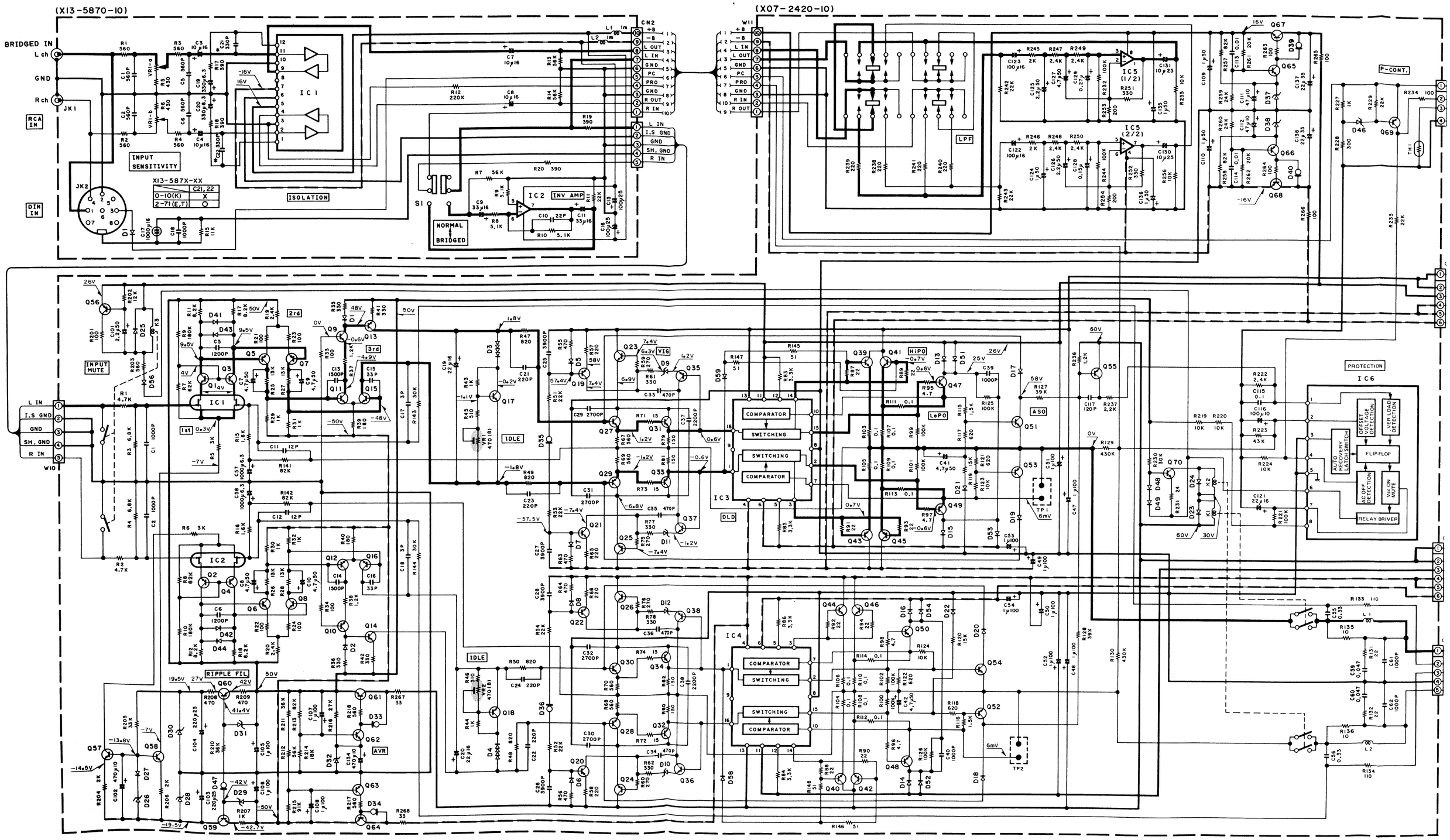


KAC-1020(L)

Refer to the schematic diagram for the values of resistors and capacitors.



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

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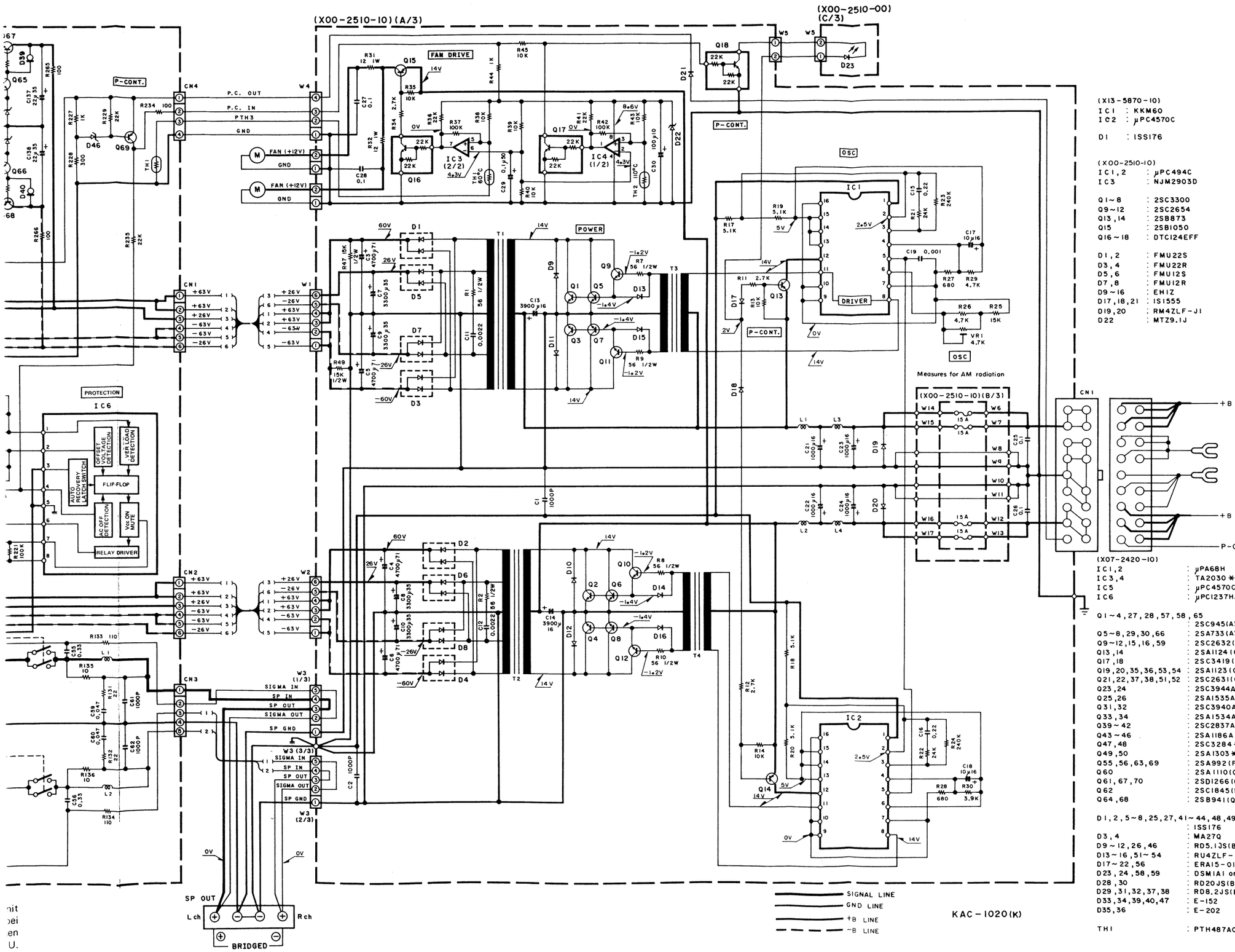


(X13-5870-10)
IC1 : KKM60
IC2 : μPC4570C

D1 : 1SS176

(X00-2510-10)
IC1,2 : μPC494C
IC3 : NJM2903D

Q1~8 : 2SC3300
Q9~12 : 2SC2654
Q13,14 : 2SB873
Q15 : 2SB1050
Q16~18 : DTC124EFF

D1,2 : FMU22S
D3,4 : FMU22R
D5,6 : FMU12S
D7,8 : FMU12R
D9~16 : EH1Z
D17,18,21 : 1S1555
D19,20 : RM4ZLF-J1
D22 : MTZ9.1J

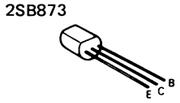
(X07-2420-10)
IC1,2 : μPA68H
IC3,4 : TA2030*1
IC5 : μPC4570C
IC6 : μPC1237HA

Q1~4,27,28,57,58,65 : 2SC945(A)(Q,P)
Q5~8,29,30,66 : 2SA733(A)(Q,P)
Q9~12,15,16,59 : 2SC2632(Q,R,S)
Q13,14 : 2SA1124(Q,R,S)
Q17,18 : 2SC3419(Y)
Q19,20,35,36,53,54 : 2SA1123(Q,R)
Q21,22,37,38,51,52 : 2SC2631(Q,R)
Q23,24 : 2SC3944A(Q,R)
Q25,26 : 2SA1535A(Q,R)
Q31,32 : 2SC3940A(R,S)
Q33,34 : 2SA1534A(R,S)
Q39~42 : 2SC2837A*5
Q43~46 : 2SA1186A*5
Q47,48 : 2SC3284*5
Q49,50 : 2SA1303*5
Q55,56,63,69 : 2SA992(F,E)
Q60 : 2SA1110(Q,R)
Q61,67,70 : 2SD1266(Q,P)
Q62 : 2SC1845(F,E)
Q64,68 : 2SB941(Q,P)

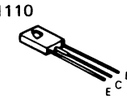
D1,2,5~8,25,27,41~44,48,49 : 1SS176
D3,4 : MA27Q
D9~12,26,46 : RD5.1JS(B)
D13~16,51~54 : RU4ZLF-J1
D17~22,56 : ERA15-01Y1
D23,24,58,59 : DSM1A1 or 1SR139-100
D28,30 : RD20JS(B)
D29,31,32,37,38 : RD8.2JS(B2)
D33,34,39,40,47 : E-152
D35,36 : E-202

THI : PTH487A01BH222T

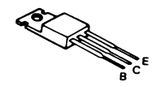
2SA1123 2SC1845
2SA1124 2SC2631
2SA1534A 2SC2632
2SA733(A) 2SC3940A
2SA992 2SC945(A)
2SB873



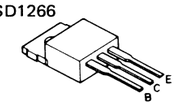
2SA1110



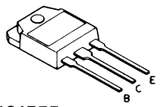
2SC2654



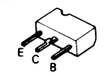
2SD1266



2SA1186A*5 2SC3284*5
2SA1303*5 2SC3300
2SC2837A*5

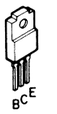


DTC124EFF

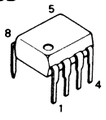


2SC3419

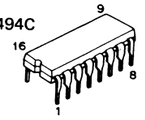
2SA1535A
2SB941
2SC3944A



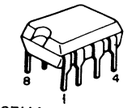
NJM2903D



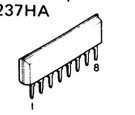
μPC494C



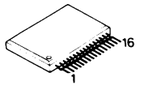
μPC4570C



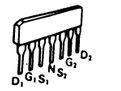
μPC1237HA



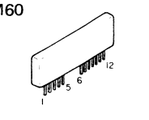
TA2030*1



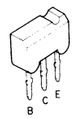
μPA68H



KKM60



2SB1050



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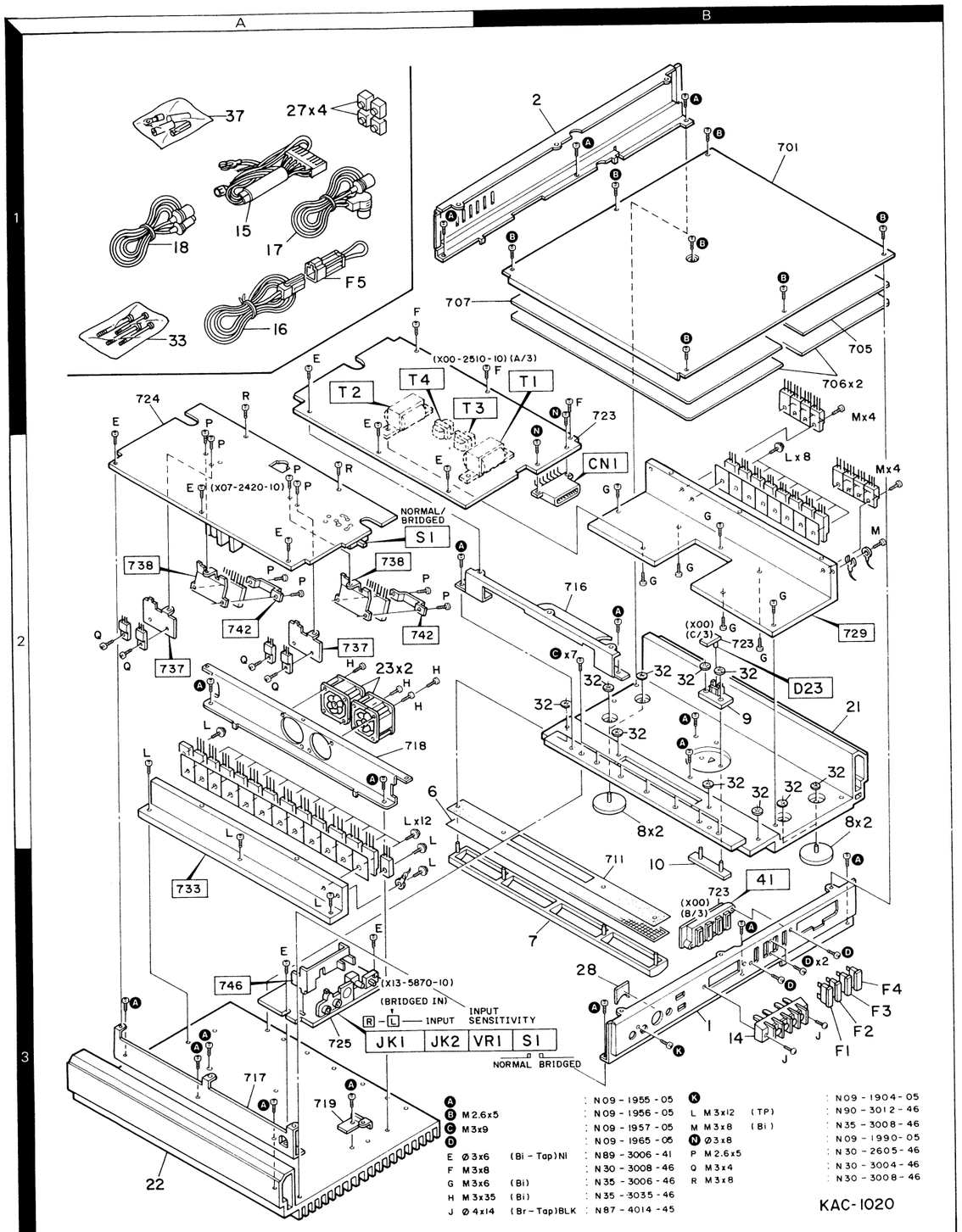
KAC-1020
KENWOOD

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

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KAC-1020						
1	3B	*	A20-5418-12	PANEL		
2	1B	*	A23-3724-12	REAR PANEL		
6	2A	*	B04-0090-03	PUNCHING METAL		
7	3B	*	B07-1784-02	ESCUTCHEON		
8	2B	*	B09-0075-04	CAP		
9	2B		B19-0541-04	LIGHTING BOARD		
10	3B		B43-0283-04	KENWOOD BADGE		
-			B46-0100-10	WARRANTY CARD		
-		*	B50-8945-00	INSTRUCTION MANUAL		
-			B58-0803-13	CAUTION CARD	ET	
-			B58-0870-04	CAUTION CARD		
-			B58-0872-04	CAUTION CARD		
14	3B		E20-0471-05	SCREW TERMINAL BOARD		
15	1A		E30-2332-05	CORD WITH CONNECTOR		
16	1A	*	E30-2439-08	DC CORD		
17	1A		E30-2400-05	CORD WITH DIN CONNECTOR	K	
18	1A		E30-2401-05	CORD WITH DIN CONNECTOR	ET	
21	2B	*	F01-1204-11	HEAT SINK		
22	3A	*	F01-1205-01	HEAT SINK		
23	2A	*	F09-0070-05	FAN		
F5	1A	*	F05-3632-08	FUSE (FUSIBLE LINK WIRE)		
F1 -4	3B		F05-1537-05	FUSE (15A BLADE TYPE)		
-		*	H01-7730-04	ITEM CARTON CASE		
-		*	H03-0988-04	OUTER CARTON CASE		
-		*	H10-3527-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0112-04	PROTECTION BAG (180X250X0.05)		
-			H25-0192-04	PROTECTION BAG (125X160X0.05)		
-		*	H25-0223-04	PROTECTION BAG (750X350X0.03)		
27	1A		J02-0372-14	FOOT		
28	3B	*	J30-0243-04	SPACER		
-			J61-0067-05	WIRE BAND		
32	2B		N29-0252-05	RETAINING RING		
33	1A		N99-0267-05	SCREW SET		
A	1B,3B		N09-1955-05	MACHINE SCREW (M3X4)		
B	1B		N09-1956-05	TAPTITE SCREW (M2.6X5)		
C	2B	*	N09-1957-05	MACHINE SCREW (M3X9)		
D	3B		N09-1965-05	TAPTITE SCREW (FUSE HOLDER)		
K	3B		N09-1904-05	TAPTITE SCREW (RCA)		
37	1A	*	W01-0189-08	ACCESSORIES		
POWER SUPPLY UNIT (X00-2510-10)						
D23	2B		B30-1130-05	LED(SLH-38VC3)		
C1 ,2			CF92FV1H102J	MF 1000PF J		
C3 -6		*	C90-1620-05	ELECTRO 4700UF 71WV		
C7 -10		*	C90-1621-05	ELECTRO 3300UF 35WV		
C11 ,12			CF92FV1H222J	MF 2200PF J		
C13 ,14			C90-1634-05	ELECTRO 3900UF 16WV		
C15 ,16			CF92V1H224J	MF 0.22UF J		
C17 ,18			CE04DW1C100M	ELECTRO 10UF 16WV		
C19			CF92FV1H102J	MF 1000PF J		
C21 -24			C90-1403-05	ELECTRO 1000UF 16WV		

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C25 -28			CF92FV1H104J	MF 0.10UF J		
C29			CE04DW1H0R1M	ELECTRO 0.1UF 50WV		
C30			CE04DW1A101M	ELECTRO 100UF 10WV		
CN1	2B	*	E08-1701-05	RECTANGULAR RECEPTACLE		
41	3B		J13-0070-05	FUSE HOLDER		
L1 -4			L33-0331-05	CHOKE COIL		
T1 ,2	1A,1B	*	L19-0055-05	TRANSFORMER FOR CONVERTER		
T3 ,4	1A	*	L19-0056-05	TRANSFORMER FOR CONVERTER		
N	1B,2B		N09-1990-05	EVATITHT SCREW (Ø3X8,+,P)CN1		
R1 ,2		*	RD14DB2H560J	SMALL-RD 56 J 1/2W		
R7 -10		*	RD14DB2H560J	SMALL-RD 56 J 1/2W		
R31 ,32		*	RS14DB3A120J	FL-PROOF RS 12 J 1W		
R47		*	RD14DB2H153J	SMALL-RD 15K J 1/2W		
R49		*	RD14DB2H153J	SMALL-RD 15K J 1/2W		
VR1			R12-1069-05	TRIMMING POT.(4.7K) OSC		
D1 ,2			FMU22S	DIODE		
D3 ,4			FMU22R	DIODE		
D5 ,6			FMU12S	DIODE		
D7 ,8			FMU12R	DIODE		
D9 -16			EH1Z	DIODE		
D17 ,18			1S1555	DIODE		
D19 ,20			RM4ZLF-J1	DIODE		
D21			1S1555	DIODE		
D22			MTZ9.1J	ZENER DIODE		
IC1 ,2			UPC494C	IC(SWITCHING REGULATOR)		
IC3		*	NJM2903D	IC(DUAL COMPARATOR)		
Q1 -8			2SC3300	TRANSISTOR		
Q9 -12			2SC2654	TRANSISTOR		
Q13 ,14			2SB873	TRANSISTOR		
Q15		*	2SB1050	TRANSISTOR		
Q16 -18			DTC124EFF	DIGITAL TRANSISTOR		
TH1		*	PTH487A01BH222T	POSITIVE RESISTOR		
TH2		*	PTH487A01BC222T	POSITIVE RESISTOR		
MAIN AMPLIFIER UNIT (X07-2420-10)						
C1 ,2			CF92FV1H102J	MF 1000PF J		
C5 ,6			CF92FV1H122J	MF 1200PF J		
C7 -10			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C11 ,12			CC45FSL1H120J	CERAMIC 12PF J		
C13 ,14			CF92FV1H152J	MF 1500PF J		
C15 ,16			CC45FSL1H330J	CERAMIC 33PF J		
C17 ,18			CC45FSL1H030C	CERAMIC 3.0PF C		
C19 ,20			CE04KW1C220M	ELECTRO 22UF 16WV		
C21 -24			CC45FSL1H221J	CERAMIC 220PF J		
C25 -28			CF92FV1H392J	MF 3900PF J		
C29 -32			CF92FV1H272J	MF 2700PF J		
C33 -36			CK45FB1H471K	CERAMIC 470PF K		
C37 ,38			CF92FV1H222J	MF 2200PF J		
C39 ,40			CF92FV1H102J	MF 1000PF J		
C41 ,42			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C47 -51			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C52		*	CE04DW2A010M	ELECTRO 1.0UF 100WV		

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C53 ,54			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C55 ,56			CF92V1H334J	MF 0.33UF J		
C57 ,58		*	C90-1643-05	ELECTRO 1000UF 6.3WV		
C59			CF92V1H473J	MF 0.047UF J		
C60			CF92FV1H473J	MF 0.047UF J		
C61 ,62			CF92V1H102J	MF 1000PF J		
C101			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C102			CE04KW1A471M	ELECTRO 470UF 10WV		
C103,104			CE04KW1E221M	ELECTRO 220UF 25WV		
C105-108			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C109,110			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C111,112			CE04KW1A470M	ELECTRO 47UF 10WV		
C113,114			CF92FV1H103J	MF 0.010UF J		
C115			CF92FV1H104J	MF 0.10UF J		
C116			CE04KW1A101M	ELECTRO 100UF 10WV		
C117			CC45FSL1H121J	CERAMIC 120PF J		
C121			CE04KW1C220M	ELECTRO 22UF 16WV		
C122,123			CE04KW1C101M	ELECTRO 100UF 16WV		
C124			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C125,126			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C127			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C128			CF92V1H154J	MF 0.15UF J		
C129			CF92V1H274J	MF 0.27UF J		
C130,131			CE04KW1E100M	ELECTRO 10UF 25WV		
C134			CE04KW1A471M	ELECTRO 470UF 10WV		
C135,136			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C137,138			CE04KW1V220M	ELECTRO 22UF 35WV		
-			L39-0157-05	PHASE-COMPENSATION COIL		
R87 -94		*	RD14AB2E220J	FL-PROOF RD 22 J 1/4W		
R95 -98		*	RD14AB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R103-114			R92-0205-05	METAL-PLATE 0.1 K 2W		
R131,132			RS14KB3D220J	FL-PROOF RS 22 J 2W		
R135,136			RS14KB3A100J	FL-PROOF RS 10 J 1W		
R203			RS14KB3A561J	FL-PROOF RS 560 J 1W		
R265,266			RS14KB3A101J	FL-PROOF RS 100 J 1W		
R267,268		*	RD14AB2E330J	FL-PROOF RD 33 J 1/4W		
VR1 ,2		*	R12-0094-05	TRIMMING POT.(470) IDLE		
K1		*	S51-2074-05	MAGNETIC RELAY		
K2 ,3			S51-2078-05	MAGNETIC RELAY		
S1	2A	*	S31-4023-05	SLIDE SWITCH (NORMAL/BRIDGED)		
D1 ,2			1SS176	DIODE		
D3 ,4		*	MA270	VARISTOR		
D5 -8			1SS176	DIODE		
D9 -12			RD5.1JS(B)	ZENER DIODE		
D13 -16			RU4ZLF-J1	DIODE		
D17 -22			ERA15-01Y1	DIODE		
D23 ,24			DSM1A1	DIODE		
D23 ,24			1SR139-100	DIODE		
D25			1SS176	DIODE		
D26			RD5.1JS(B)	ZENER DIODE		
D27			1SS176	DIODE		
D28			RD20JS(B)	ZENER DIODE		
D29			RD8.2JS(B2)	ZENER DIODE		

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D30			RD20JS(B)	ZENER DIODE		
D31 ,32			RD8.2JS(B2)	ZENER DIODE		
D33 ,34			E-152	CONSTANT CURRENT DIODE		
D35 ,36			E-202	CONSTANT CURRENT DIODE		
D37 ,38			RD8.2JS(B2)	ZENER DIODE		
D39 ,40			E-152	CONSTANT CURRENT DIODE		
D41 -44			1SS176	DIODE		
D46			RD5.1JS(B)	ZENER DIODE		
D47			E-152	CONSTANT CURRENT DIODE		
D48 ,49			1SS176	DIODE		
D51 -54			RU4ZLF-J1	DIODE		
D56			ERA15-01Y1	DIODE		
D58 ,59			DSM1A1	DIODE		
IC1 ,2			UPA68H	DUAL FET		
IC3 ,4		*	TA2030*1	IC(LO/HI SWITCHING)		
IC5			UPC4570C	IC(OP AMP X2)		
IC6			UPC1237HA	IC(POWER AMP)		
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		
Q5 -8			2SA733(A)(Q,P)	TRANSISTOR		
Q9 -12			2SC2632(Q,R,S)	TRANSISTOR		
Q13 ,14			2SA1124(Q,R,S)	TRANSISTOR		
Q15 ,16			2SC2632(Q,R,S)	TRANSISTOR		
Q17 ,18			2SC3419(Y)	TRANSISTOR		
Q19 ,20		*	2SA1123(Q,R)	TRANSISTOR		
Q21 ,22			2SC2631(Q,R)	TRANSISTOR		
Q23 ,24			2SC3944A(Q,R)	TRANSISTOR		
Q25 ,26			2SA1535A(Q,R)	TRANSISTOR		
Q27 ,28			2SC945(A)(Q,P)	TRANSISTOR		
Q29 ,30			2SA733(A)(Q,P)	TRANSISTOR		
Q31 ,32		*	2SC3940A(R,S)	TRANSISTOR		
Q33 ,34		*	2SA1534A(R,S)	TRANSISTOR		
Q35 ,36		*	2SA1123(Q,R)	TRANSISTOR		
Q37 ,38			2SC2631(Q,R)	TRANSISTOR		
Q39 -42		*	2SC2837A*5	TRANSISTOR		
Q43 -46		*	2SA1186A*5	TRANSISTOR		
Q47 ,48			2SC3284*5	TRANSISTOR		
Q49 ,50			2SA1303*5	TRANSISTOR		
Q51 ,52			2SC2631(Q,R)	TRANSISTOR		
Q53 ,54		*	2SA1123(Q,R)	TRANSISTOR		
Q55 ,56			2SA992(F,E)	TRANSISTOR		
Q57 ,58			2SC945(A)(Q,P)	TRANSISTOR		
Q59			2SC2632(Q,R,S)	TRANSISTOR		
Q60			2SA1110(Q,R)	TRANSISTOR		
Q61			2SD1266(Q,P)	TRANSISTOR		
Q62			2SC1845(F,E)	TRANSISTOR		
Q63			2SA992(F,E)	TRANSISTOR		
Q64			2SB941(Q,P)	TRANSISTOR		
Q65			2SC945(A)(Q,P)	TRANSISTOR		
Q66			2SA733(A)(Q,P)	TRANSISTOR		
Q67			2SD1266(Q,P)	TRANSISTOR		
Q68			2SB941(Q,P)	TRANSISTOR		
Q69			2SA992(F,E)	TRANSISTOR		
Q70			2SD1266(Q,P)	TRANSISTOR		
TH1			PTH487A01BH222T	POSITIVE RESISTOR		

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SWITCH UNIT (X13-5870-10)						
C1 ,2			CK45FB1H561K	CERAMIC 560PF K		
C3 ,4		*	C90-1638-05	ELECTRO 10UF 16WV		
C5 ,6			CK45FB1H561K	CERAMIC 560PF K		
C7 ,8		*	C90-1638-05	ELECTRO 10UF 16WV		
C9		*	CE04DW1C330M	ELECTRO 33UF 16WV		
C10			CC45FSL1H220J	CERAMIC 22PF J		
C11		*	CE04DW1C330M	ELECTRO 33UF 16WV		
C15 ,16		*	CE04DW1E101M	ELECTRO 100UF 25WV		
C17			C90-1630-05	NP-ELEC 1000UF 16WV		
C18			CF92FV1H102J	MF 1000PF J		
C19 ,20		*	C90-1641-05	ELECTRO 330UF 6.3WV		
C21 ,22		*	CF92V1H331K	MF 330PF K	ET	
JK1	3A		E13-0241-05	PHONO JACK(INPUT/BRIDGED IN)		
JK2	3A		E06-0816-05	DIN JACK (INPUT)		
L1 ,2			L33-0344-05	CHOKE COIL (1MH)		
VR1	3A		R10-3030-05	POTENTIOMETER(INPUT SENSITIVIT		
S1	3B	*	S31-2130-05	SLIDE SWITCH (NORMAL/BRIDGED)		
D1			1SS176	DIODE		
IC1			KKM60	IC(ISOLATION AMP)		
IC2			UPC4570C	IC(OP AMP X2)		

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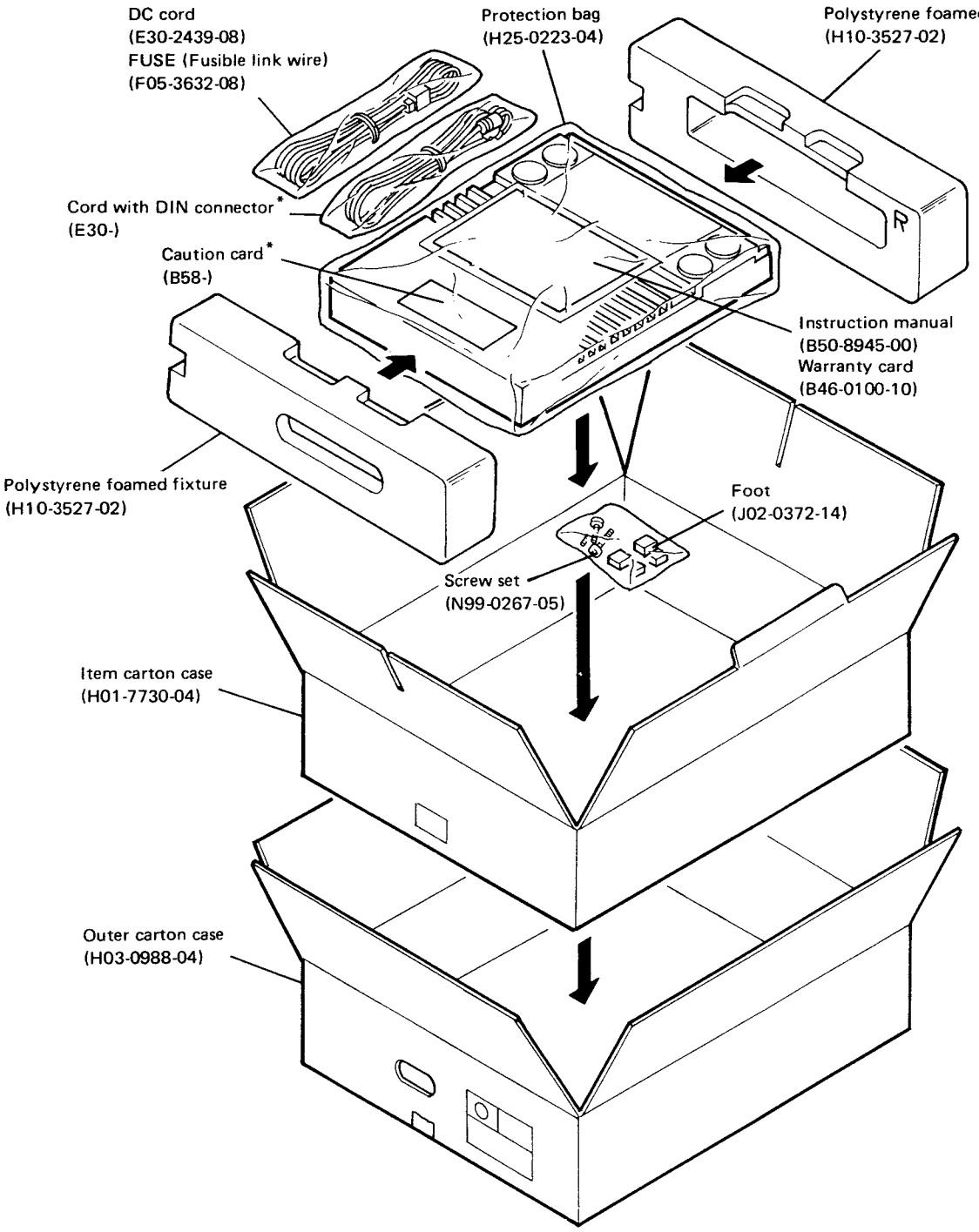
PACKING



*Refer to parts list on page 22.

KAC-1020

SPECIFICATIONS

Audio section

Maximum output power (1 kHz, 4 Ω)
- Normal ..... 320 W + 320 W
- Bridged ..... 640 W

Output power
- (1 kHz, 4 Ω, 10% THD)
  - Normal ..... 250 W + 250 W
  - Bridged ..... 500 W
- (20 Hz ~ 20 kHz, 4 Ω, less than 0.5% THD)
  - Normal ..... 200 W + 200 W
  - Bridged ..... 400 W
- (20 Hz ~ 20 kHz, 4 Ω, less than 0.03% THD)
  - Normal ..... 185 W + 185 W
  - Bridged ..... 370 W

Frequency response (−3 dB) ..... 2 Hz - 100 kHz
Input sensitivity (at rated output) Max. ..... 0.1 V
Min. ..... 5.0 V
Signal-to-noise ratio ..... 100 dB
Input impedance ..... 10 kΩ
Damping factor (100 Hz) ..... More than 5000
Sub woofer frequency ..... 50 Hz, 100 Hz

General

Operating voltage (GND) ..... 14.4 V (11 - 16 V)
Current consumption ..... 60 A
Dimensions (W × H × D) ..... 400 × 66 × 300 mm
(15-3/4 × 2-5/8 × 11-13/16 in.)
Weight ..... 9.2 kg (20.3 lb)

Specifications subject to change without notice.

Note :

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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